CHAPTER-3

METHODOLOGY AND DESIGN

3.1 Introduction:

Research methodology is an integral part of a research work. It is a way to solve the research problem systematically and scientifically. It involved all the steps that are adopted by the researcher while studying his or her research problem along with logic behind them. It is concerned with various procedures that are adopted in solving research problem. It helps in successful completion of research work. This chapter deals with the design, method, population and sample, tools used for the study, procedure of data collection and data collection techniques.

So far as objectives are concerned the present study includes under descriptive research. This method describes and interprets what exists at present.

3.2 Design of the study:

The present study is an explorative and descriptive in nature.

3.3 Method:

Present study adopted descriptive-cum-survey method and followed the related strategies for its various aspects. This method helps the researcher to get detailed description about the existing condition. It involved the description, recording, analysis and interpretation of condition that exist. Descriptive research studies are designed to obtain information concerning the current status of phenomenon. It is the most popular method and most widely used research method in education. The present study employed data analysis and interpretation which give a clear picture of the academic achievement of scheduled caste and non-scheduled caste students in relation to their adjustment and intelligence level.

3.4 population of the study:

All the scheduled caste and non-scheduled caste students of secondary level of Assam are the population of the present study.

3.5 Sampling techniques:

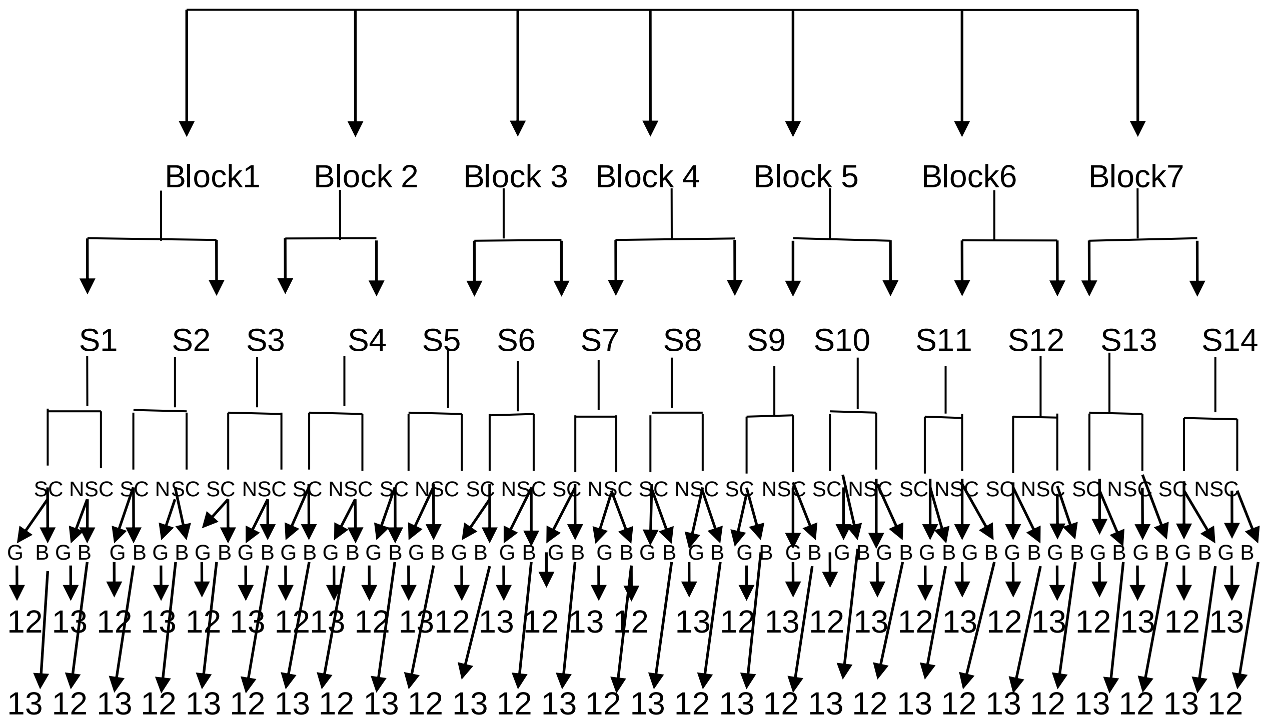
Sampling is the process of selecting a sample from the population. It is the process through which it is possible to draw valid inferences or generalizations on the basis of careful observation of variables within a relatively small proportion of the population. In the present study the researcher has used stratified random sampling technique for selecting the sample.

3.6 Sample size:

The researcher has selected 700 samples from the population of secondary school students (class IX & X) of rural Kamrup district of Assam, including 350 Scheduled Caste and 350 non-Scheduled caste students. Among 350 scheduled caste and 350 non-scheduled caste students 175 boys and 175 girls has been selected for collecting data.

3.7 Diagram of sample size:

Total block in Kamrup (rural) 14



(In the above diagram S stands for school, G stands for girls and B stands for boys)

3.8 Locale of the study:

India is a country comprised of 29 states and 7 union territories. The north-eastern regions of India comprised of eight states viz, Arunchal Prades, Nagaland, Manipur, Mizoram, Meghalaya, Tripura, Sikkim, Assam. Assam is one of the states of north-eastern region covering the area of 78,438 Sq. Km, which is having 27 districts. The whole Assam is consisting of two valleys, Brahmaputra and Barak. Kamrup district is one of the districts of Brahmaputra valley. For smooth administration the districts has been divided in to two parts, rural Kamrup and urban Kamrup. It occupies an area of 4,345 sq. kilometer. According to the 2011 census Kamrup districts have a population of 1,517,202.It has population density of 436 inhabitants per square kilometer. Its population growth rate over the decade 2001-2011 was 15.67%.It has a sex ratio of 946 female for every 1000 male and the literacy rate of Kamrup district is72.81%. Kamrup rural occupies an area of 4,34,500 hectare. According to 2011 census total population of Kamrup rural is 13, 75,148. Its district headquarter is Guwahati. It has two sub-division, one is Kamrup Sadar and the other is Rangiya. In the north of the rural Kamrup it has Baksa and Nalbari districts, Kamrup metro is in the east, Meghalaya is in the south, and it has Goalpara district in the west. Literacy rate of Kamrup rural according to 2011 census is 74.21%, among them 80.10% are male and 67.96% are female.

3.9 Tools used for the study:

3.9.1 Adjustment inventory

Tools are the most important prerequisite of any research process. Preparation of a tool requires skill, expertness and deepest knowledge about the tool construction process. Scientifically prepared tool can ensure desired results with its proper validity and reliability. In the present study researcher has developed one adjustment inventory on the basis of the objective for collection of data.

3.9.2 Construction of test:

The researcher has developed one adjustment inventory related to school education for collecting data related to the first objectives of the study. In the adjustment inventory 150 items has been included, which are divided under five different areas of adjustment. These areas are--(a) Health (b) Home (c) School (d) Emotional (e) Social. Here total number of items is 150 and each area contains 30 items. There are two types of responses – 'Yes' and 'No'. Each item of the test is scored as either '1' or '0' for correct and incorrect responses respectively.

To construct the adjustment inventory the researcher initially prepared 250 items covering all the above mentioned areas. Under each area 50 items were there.

After preparing the preliminary draft of the tool it was sent to the experts for their recommendations, and then it was discussed among the departmental teachers. After expert's recommendations with a little modification final draft for pilot study was prepared having 230 items, consisting 46 items in each area. After draft of the tool a scoring key was also developed.

Pilot study: For the pilot study the tool was administered on a group of sample consisting of 100 students studying at secondary level school (class ix and x). After collecting the data from the sample group scoring was made on the basis of scoring key. Then the test scores were arranged in order from highest score to lowest score for calculating difficulty level of the item. Then for calculating difficulty level of each item two groups of respondent were formed by taking 27 percent students from top from the ascending order list for upper group; and 27 percent from bottom from the list of lower group. As in the pilot study 100 respondents were there; so in upper group 27 students and in lower group 27 students were taken for forming the group. After forming the group, difficulty level of the items were calculated by using the following formula—

$$\text{Difficulty level} = R/T \times 100$$

Where, R = the number of persons who get the items right (upper group+ lower group)

T= Number of person in total in upper and lower group.

By following the above mentioned method, a good number of items were discarded and 150 items were kept for the final tool. In each area 30 items were included.

3.9.3 Reliability of the tool: After preparation of final draft the tool was again administered on a group of 100 samples of secondary level students (class ix and x). Then scores of the sample students in the adjustment inventory was calculated for determining the reliability of the tool. Test-retest method was used for determining the reliability.

Spearman's rank correlation was applied for determining the reliability co-efficient of the adjustment inventory. The co-efficient of correlation for the whole test was found .89. Area wise reliability co-efficient of correlation of the adjustment inventory is shown in following table—

Table no-3.1 Area wise reliability co-efficient of correlation of the adjustment inventory

Areas of adjustment	Coefficient of correlation
Health	.89
Home	.86
School	.83
Emotional	.94
Social	.86

3.9.4 Validity: After discussion with the expert, teacher and students it is ensured that that the present scale possess sufficient validity. It means that the present tool can serve the purpose for which it has developed. Besides this, in the process of construction of the adjustment inventory, the researcher ensured that the face validity, content validity and construct validity has duly been taken care of while writing and finally selecting the test items by undertaking statistical technique and expert's opinion.

Thus, the adjustment inventory for the secondary level students was accepted as a valid tool to measure the level of adjustment of scheduled caste and non-scheduled caste students of rural Kamrup district of Assam.

The adjustment inventory was further standardized by re-arranging its items in a systematic way, keeping proper emphasis on each five areas. The nature of the scoring system reflects the objectivity of the inventory. And hence, the adjustment inventory can be considered as a standard tool for measuring the adjustment level of the secondary level students.

3.9.5 Final form of the adjustment inventory

Table no-3.2 the number of items in preliminary, try out and final form of adjustment Inventory

Areas of adjustment	Preliminary form of adjustment inventory	Try out form of adjustment inventory	Final form of adjustment inventory
Health	50	46	30
Home	50	46	30
School	50	46	30
Emotional	50	46	30
Social	50	46	30

3.9.6 Scoring:

The investigator has developed a scoring key for the adjustment inventory. The maximum possible score on this test is 150. Each item of the test is scored as either one (+1) or zero (0) for correct and incorrect responses respectively. There are two types of responses 'Yes' and 'No' .There are five different areas of adjustment, these are (a) Health (b) Home (c) School (d) Emotional (e) Social. There are 30 items in each of these different areas of adjustment. Each correct answer has been given 1 and each incorrect answer has been given 0. By adding the allotted score to each item shows the total adjustment of the respondent. Scoring key is shown in the table no-3.5

Table no-3.3 the classification of total score of adjustment

Level of adjustment	**Range of scores**
Highly adjusted	101-150
Average adjusted	51-100
Poor adjusted	0-50

The respondent's total scores of adjustment were classified into high, average and poor adjustment. The respondents who scores between 101 to150 were labeled as highly adjusted, who scores between 51 to100 were labeled as average adjusted and who scores between 0 to 50 were labeled as poor adjusted.

Table no-3.4 the classification of area wise score of adjustment

Adjustment area	Level of adjustment	Ranges of scores
Health	Highly adjusted	21-30
	Average adjusted	11-20
	poor adjusted	0-10
Home	Highly adjusted	21-30
	Average adjusted	11-20
	Poor adjusted	0-10
School	Highly adjusted	21-30
	Average adjusted	11-20
	Poor adjusted	0-10
Emotional	Highly adjusted	21-30
	Average adjusted	11-20
	Poor adjusted	0-10
Social	Highly adjusted	21-30
	Average adjusted	11-20
	Poor adjusted	0-10

The respondent's area wise adjustment scores were also classified in the category of high, average and low adjustment. The respondents who scores between 21 to 30 were labeled as highly adjusted, who scores between 11 to 20 were labeled as average adjusted and who scores between 0 to 10 were labeled as poor adjusted.

Table no-3.5 Scoring key of the adjustment inventory

Item no	Response indicative of health adjustment	Item no	Response indicative of home adjustment	Item no	Response indicative of school adjustment	Item no	Response indicative of emotional adjustment	Item no	Response indicative of social adjustment
1	Yes	1	Yes	1	Yes	1	Yes	1	Yes
2	Yes	2	Yes	2	Yes	2	Yes	2	Yes
3	Yes	3	Yes	3	Yes	3	Yes	3	Yes
4	Yes	4	Yes	4	Yes	4	Yes	4	Yes
5	Yes	5	Yes	5	Yes	5	Yes	5	Yes
6	No	6	Yes	6	Yes	6	No	6	Yes
7	No	7	Yes	7	Yes	7	No	7	Yes
8	No	8	Yes	8	Yes	8	No	8	Yes
9	No	9	Yes	9	Yes	9	No	9	Yes
10	No	10	No	10	Yes	10	No	10	Yes
11	No	11	No	11	Yes	11	No	11	Yes
12	No	12	No	12	Yes	12	No	12	No
13	No	13	Yes	13	Yes	13	No	13	Yes
14	No	14	No	14	Yes	14	No	14	Yes
15	No	15	No	15	Yes	15	No	15	No
16	No	16	No	16	yes	16	No	16	No
17	No	17	No	17	No	17	No	17	No
18	No	18	No	18	No	18	No	18	No
19	No	19	No	19	No	19	No	19	No
20	No	20	No	20	No	20	No	20	No
21	No	21	No	21	No	21	No	21	Yes
22	No	22	No	22	No	22	No	22	No
23	No	23	No	23	No	23	No	23	No
24	No	24	No	24	Yes	24	No	24	No
25	No	25	No	25	No	25	No	25	No
26	No	26	Yes	26	No	26	No	26	No
27	No	27	Yes	27	No	27	Yes	27	Yes
28	No	28	No	28	No	28	Yes	28	Yes
29	No	29	No	29	No	29	No	29	No
30	No	30	yes	30	No	30	No	30	yes

3.10 Intelligence test:

The researcher has also adopted one intelligence test named **"G.C Ahuja Group test of intelligence"** by Dr.G.C Ahuja to achieve the second objective of the study published by **National psychological corporation (India).** In this test there are 8 sub-tests and 135 total numbers of items. The reliability of this test through split-half method was found 0.97 and the test has empirical, internal and factorial validity.

Table no-3.6 the classification of total score of intelligence

Level of intelligence	Range of scores
Accelerated	85-126
Normal	43-84
Below normal	0-42

The respondent's intelligence scores were classified in to accelerated, normal and below normal. The respondents who scores between 85 to 126 were labeled as accelerated, who scores between 43 to 84 were labeled as normal and who scores between 0 to 42 were labeled as below normal

Again, to achieve the third objective of the present study researcher has decided to collect the marks obtained by the sample students in their last examination.

3.11 Procedure of data collection:

After the development of adjustment inventory the researcher has personally collected the data from the selected sample. Samples are collected from the schools. Researcher has gone to different schools of rural Kamrup district of Assam. Adjustment inventory and intelligence tools have been given to the scheduled caste and non-scheduled caste students of class ix and x. Both girls and boys are included in the sample students. And for collecting data regarding academic achievement of the students researcher has collected the last examination marks of the students from the schools office. Among the sample students 350 were scheduled caste and 350 were non-scheduled caste, again among 350 students 175 were girls and 175 were boys in both the groups.

3.12 Technique of data analysis:

The researcher has collected the required data from the sampled schools with the help of above mentioned tools. Analysis and interpretation has been done using qualitative and quantitative techniques. Under quantitative techniques the statistical techniques have been used. The techniques are – percentage, Mean, Standard Deviation, Co-efficient of correlation, ‘Z’ test etc.